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Institute for Materials Research Report on Materials Research Symposia Series FY 1966-1975

Ronald B. Johnson and Ellen N. Ring

Institute for Materials Research
National Bureau of Standards
Washington, D. C. 20234

August 1976



U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

NBSIR 76-1119

**INSTITUTE FOR MATERIALS
RESEARCH REPORT ON MATERIALS
RESEARCH SYMPOSIA SERIES
FY 1966-1975**

Ronald B. Johnson and Ellen N. Ring

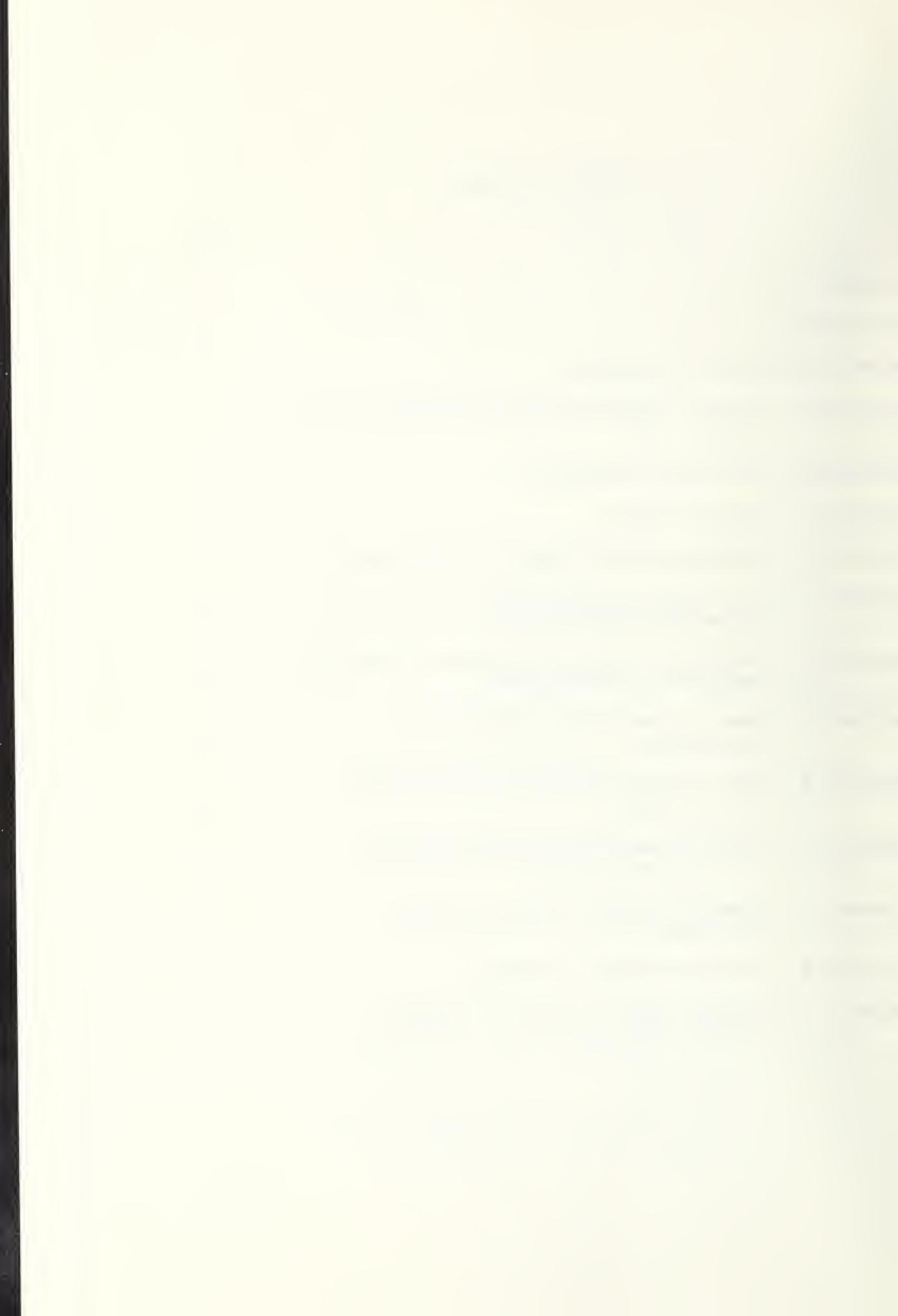
Institute for Materials Research
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U.S. DEPARTMENT OF COMMERCE, Elliot L. Richardson, *Secretary*
Edward O. Vetter, *Under Secretary*
Dr. Betsy Ancker-Johnson, *Assistant Secretary for Science and Technology*
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, *Acting Director*

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Foreword

A series of Materials Research Symposia was initiated in 1966 to foster exchange of technical information among scientists and technologists throughout the United States and abroad. Since that time, 42 conferences have been held covering a wide range of topics including trace characterization, thermodynamic, mechanical, and thermal properties of materials, international standard reference materials, solid state chemistry, and many others. This report was prepared to illustrate in quantitative terms how effective the Series has been in attracting scientists, engineers, and technologists from leading institutes in the private and public sectors from the United States and abroad and how this Series is making a substantial impact on technology transfer. This also will serve as a prime reference document covering the symposia and conferences conducted by the Institute for Materials Research during the period from May 1966 through June 30, 1975.

Acknowledgment of support by other National Bureau of Standards (NBS) organizations is contained within. However, special recognition is given for the outstanding contributions made by Robert F. Martin (Institute for Materials Research), Sara Torrence (Special Activity Section), and Betty Burris (Publication Production Section) and, naturally, the staff of the Institute for Materials Research. Thanks is given also to Phyllis Williams (on detail to the Institute for Materials Research) for her assistance in the preparation of this report.

INTRODUCTION

The Institute for Materials Research (IMR) was established in 1964 and has since evolved and progressed into one of the leading materials research laboratories in the world. The goal of the Institute is to improve the utilization of materials throughout the economy by providing measurement methods, standards, and scientific and technical data and information.

A major responsibility of the Institute for Materials Research is to ensure that basic urgently needed data on the properties and behavior of materials are available to meet the requirements of the Nation's scientists and engineers. This responsibility is met, in part, through the measurements and various compilations performed in our laboratories, and the ultimate publication of these activities in various modes of scientific and technical communications. Also, in meeting this responsibility, it is often necessary to come together in forums where free and spirited exchange of knowledge, concepts, long-range predictions, etc., can be expressed and ultimately transmitted into written proceedings or other types of technology transfer.

In late 1965, Dr. Gordon K. Teal, then Director of the Institute, authorized a special conference on the subject of "Calculation of the Properties of Vacancies and Interstitials" to be held in May 1966. In early 1966, Dr. Teal also authorized the first Materials Research Symposium to be held in October 1966. At that time, he stated "Symposia such as this one and those that will follow are tailored to provide an opportunity for interdisciplinary discussions of the state-of-the-art in the broad spectrum of competences in materials research represented at the National Bureau of Standards."

Since the initial meeting in May 1966, the Materials Research Symposia series* has developed into a major output of IMR and continues to serve as a primary mechanism for effective technology transfer in such important areas of national concern as:

- ° Public Health and Safety
- ° Environmental Pollution Measurement
- ° Energy Conservation
- ° Industrial Processes
- ° Applications of Basic Science.

* Covers all major IMR symposia, conferences, and workshops.

In addition to the series, there have been numerous dialogues, seminars, etc., conducted on the manifold research activities of the Institute during the same time span as covered in this report.

For the period FY 1966-1975, over 7,300 scientists and engineers have attended 42 major meetings in this Series. Of these, 36% have represented U.S. private industry, 19% from U.S. research institutes and universities, 33% from Federal, State, and local government organizations, and 12% from foreign organizations. The participants from private industry represented more than 80 of the first 100 in the *Fortune 500* and approximately 250 of the total 500. Also, hundreds of other companies, representing both large and small business enterprises, have been in attendance and benefited from this means of technology transfer. In addition, representatives of over 225 of the larger colleges and universities in the scientific community have been represented. Likewise, the majority of the Federal Government organizations concerned with science and technology have been represented. The representation from foreign organizations is indicative of the importance these countries attribute to the need for international exchange and first-hand acquisition of data and information.

During this report period, the Series has been sponsored by 42 individual organizations representing: (1) Federal Government - 22; (2) professional and standards groups - 10; (3) private industry - 4; (4) international groups - 5; and (5) university - 1. More detailed information concerning all of the above is contained in the appendices.

The proceedings of these meetings serve both as a lasting testimony and as a mechanism for technology transfer. In all, more than 65,000 copies of the published proceedings have been sold by the Government Printing Office and the National Technical Information Service. Many additional ones have been sold or distributed by cosponsors who have handled sale of proceedings. Of the 31 conference proceedings, more than 50% have had sales exceeding 1500--"best sellers" among such proceedings. Including total copies sold and projected sales, virtually every proceedings is destined to become a "best seller."

The meetings conducted in FY 1976 and those planned for FY 1977 (contained in the Appendices), under the auspices of Dr. John D. Hoffman, present Director of the Institute for Materials Research, continue to emphasize technology transfer and state-of-the-art measurement methods and technology. Also, the topics of these meetings address immediate scientific and technical problems essential in meeting the Nation's goals in solving problems in areas such as environmental pollution measurement, public safety, energy conservation, public health, and effective materials utilization and conservation. The practice of special consideration for attendance of graduate students at these meetings, in general, helps assure that the next generation of the Nation's scientists, engineers, and technologists are properly prepared to address the scientific and technical challenges of the future.

The successful conduct of the conferences in this Series has been instrumental in affecting how all symposia, etc., are conducted at the National Bureau of Standards (NBS). Through close liaison with other units of NBS, an extremely effective operation has been developed in regard to conduct and management of this Series.

The Institute for Materials Research has had significant and noteworthy support from many organizations at the National Bureau of Standards in the conduct of the Materials Research Symposia Series. The following organizations are acknowledged in alphabetical order for these outstanding contributions:

- Conference Facilities and Equipment Section
- Cost and Payments Branch
- Editorial Section
- Janitorial Services
- Office of Information Activities
- Office of International Relations
- Office of Technical Publications
- Physical Security Section
- Printing and Duplicating Services
- Procurement Section
- Publication Production Section
- Security Office
- Special Activities Section
- Transportation Services
- Travel Office
- Visual Arts Section

We are grateful for this assistance and there is no question that this has helped to assure the successful operation of these meetings.

Remarks concerning the Appendices

Appendix A lists the meetings conducted under the auspices of the Materials Research Symposia Series in chronological order and a number is assigned to each one. This number is then used in the other appendices to indicate which meeting a certain company, foreign research laboratory, etc., had been represented. In regard to private U.S. organizations, only the company is indicated and not all divisions who have been represented. Also, under the private organizations, we have listed hospitals which could not be readily identified as being associated with either a university or State.

Under the listings for the Federal Organizations, we have retained the name of AEC to insure continuity for this report.

In respect to the listing of foreign representation, there is a possibility of double counting in the cases where different names may have been used to identify the sponsoring organization of a participant.

INSTITUTE FOR MATERIALS RESEARCH

Materials Research Symposia Series

FY 1966 - 1975

REGISTRANTS

SERIES NUMBER		REGISTRANTS				TOTAL
		<u>INDUSTRY</u>	<u>GOVERNMENT</u>	<u>RESEARCH INSTITUTES & UNIVERSITIES</u>	<u>FOREIGN</u>	
1	Conference on Calculation of the Properties of Vacancies and Interstitials (5/1-4/66)	12	13	26	19	70
2	First Materials Research Symposium on Trace Characterization (10/3-7/66)	194	211	62	47	514
3	Seminar on Quantitative Electron Probe Microanalysis (6/12-13/67)	1	11	2	12	26
4	Second Materials Research Symposium on Molecular Dynamics and Structure of Solids (10/16-19/67)	29	58	80	25	192
5	Symposium on Mass Transport in Oxides (10/22-25/67)	13	32	53	10	108
6	Symposium on Mechanical and Thermal Properties of Ceramics (4/1-2/68)	97	18	18	7	140
7	Must They Fail? (5/1/68)	167	50	53	5	275
8	International Conference on Modern Trends in Activation Analysis (10/7-11/68)	86	118	85	101	390
9	Symposium on Ion-Selective Electrodes (1/30-31/69)	200	102	80	7	389
10	Symposium on Thermodynamic Properties of Bulk Polymers (3/10-12/69)	30	14	48	10	102

REGISTRANTS

<u>SERIES NUMBER</u>		<u>INDUSTRY</u>	<u>GOVERNMENT</u>	<u>RESEARCH INSTITUTES & UNIVERSITIES</u>	<u>FOREIGN</u>	<u>TOTAL</u>
11	Conference on Fundamental Aspects of Dislocation Theory (4/21-25/69)	11	10	39	42	102
12	International Standard Reference Materials Symposium (5/26-28/69)	--	4	--	34	38
13	Symposium on Dental Research (10/6-8/69)	80	35	76	56	247
14	Third Materials Research Symposium on Electronic Density of States (11/3-6/69)	70	110	104	35	319
15	Fourth Materials Research Symposium on Mechanisms of Pyrolysis, Oxidation and Burning of Organic Materials (10/26-29/70)	140	58	36	16	250
16	Science of Ceramic Machining and Surface Finishing (11/2-4/70)	115	37	22	13	187
17	Twenty-Fourth Summer Symposium in Analytical Chemistry (6/15-18/71)	127	152	110	15	404
18	Fifth Materials Research Symposium on Solid State Chemistry (10/18-21/71)	80	59	58	41	238
19	MFPG Conference on Mechanical Failure Prevention Through Lube Oil Analysis (11/2-4/71)	87	70	11	9	177
20	Conference on Accuracy in Spectrophotometry and Luminescence Measurements (3/22-24/72)	61	37	17	11	126
21	MFPG Conference on Environmental Effects on Mechanical Failures, Mechanisms and Detection (4/25-27/72)	39	38	15	4	96

REGISTRANTS

<u>SERIES NUMBER</u>		<u>INDUSTRY</u>	<u>GOVERNMENT</u>	<u>RESEARCH INSTITUTES & UNIVERSITIES</u>	<u>FOREIGN</u>	<u>TOTAL</u>
22	Conference on Automotive Emissions Gas Reference (7/27-28/72)	37	26	--	--	63
23	Third International Congress on Marine Corrosion and Fouling (10/2-6/72)	84	74	34	74	266
24	MFPG Conference on Detection, Diagnosis, and Prognosis (11/8-10/72)	102	89	10	10	211
25	Conference on Defects and Defect Clusters in B.C.C. Metals and Their Alloys (8/14-16/73)	17	44	35	33	129
26	Sixth Materials Research Symposium on Standard Reference Materials and Meaningful Measurements (10/29-11/2/73)	79	88	11	43	221
27	MFPG Conference on the Role of Cavitation in Mechanical Failures (10/31-11/2/73)	35	29	10	3	77
28	National Materials Conservation Symposium (4/29-5/1/74)	125	84	8	5	222
29	MFPG Symposium on Mechanical Failures (5/8-10/74)	63	92	23	11	189
30	Aerosol Measurements (5/7/74)	5	22	5	--	32
31	Marine Pollution Monitoring (Petroleum) Symposium and Workshop (5/13-17/74)	39	115	42	40	236
32	Workshop on Ozone Measurement by the Potassium Iodide Method (8/26-27/74)	--	23	1	--	24
33	Workshop on Secondary Ion Mass Spectrometry (9/16-18/74)	29	32	10	5	76

REGISTRANTS

SERIES NUMBER		<u>INDUSTRY</u>	<u>GOVERNMENT</u>	<u>RESEARCH INSTITUTES & UNIVERSITIES</u>	<u>FOREIGN</u>	<u>TOTAL</u>
34	Seventh Materials Research Symposium - Accuracy in Trace Analysis (10/7-11/74)	121	181	57	55	414
35	MFPG Conference on Success by Design: Progress Through Failure Analysis (11/7-8/74)	22	46	13	3	84
36	Nondestructive Evaluation Review and Workshop (12/2-3/74)	7	26	1	--	34
37	Conference on Instrumental Methods in Air and Water Measurements and Monitoring (12/14/74)	31	58	22	--	111
38	Symposium on Practical Applications of Neutron Radiography and Gauging (2/10-11/75)	69	56	12	4	141
39	Piezoelectric and Pyroelectric Symposium (4/15-16/75)	18	37	12	2	69
40	MFPG Symposium in Detection, Diagnosis, and Prognosis (4/23-25/75)	89	31	9	7	136
41	Workshop on Automotive Emissions Measurements (5/20/75)	7	6	--	--	13
42	Seminar on Ultrasonic Tissue Characterization (5/28-30/75)	43	65	97	7	212
	TOTALS:	2,661	2,461	1,407	821	7,350

NOTE: Accurate attendance records not available for meetings # 1, 7, and 10. Distribution of registrants based upon knowledge of author and program chairpersons.

INSTITUTE FOR MATERIALS RESEARCHMATERIALS RESEARCH SYMPOSIA SERIESPUBLICATION INFORMATION

FY 1966 - 1975

<u>Title</u>	<u>NBS Publication #</u>	<u># of Copies Provided Directly to Participants and Sponsors</u>	<u># of Copies Sold by GPO/NTIS</u>
° <u>Conference on Calculation of the Properties of Vacancies and Interstitials</u> May 1-4, 1966	M 287	900	415
° <u>First Materials Research Symposium on Trace Characterization</u> October 3-7, 1966	Mono - 100	1,400	3,175
° <u>Seminar on Quantitative Electron Probe Microanalysis</u> June 12-13, 1967	SP 298	1,600	1,638
° <u>Second Materials Research Symposium on Molecular Dynamics and Structure of Solids</u> October 16-19, 1967	SP 301	900	3,244
° <u>Symposium on Mass Transport in Oxides</u> October 22-25, 1967	SP 296	800	2,110
° <u>Symposium on Mechanical and Thermal Properties of Ceramics</u> April 1-2, 1968	SP 303	910	1,523
° <u>International Conference on Modern Trends in Activation Analysis</u> October 7-11, 1968	SP 312	800	2,035
° <u>Symposium on Ion-Selective Electrodes</u> January 30-31, 1969	SP 314	1,630	9,142

° <u>Conference on Fundamental Aspects of Dislocation Theory</u> April 21-25, 1969	SP 317	800	1,429
° <u>Symposium on Dental Materials Research (50th Anniversary at NBS)</u> October 6-8, 1969	SP 354	800	1,052
° <u>Third Materials Research Symposium on Mechanisms of Density of States</u> November 3-6, 1969	SP 323	1,300	1,244
° <u>Fourth Materials Research Symposium on Mechanisms of Pyrolysis, Oxidation and Burning of Organic Materials</u> October 26-29, 1970	SP 357	1,000	1,196
° <u>Science of Ceramic Machining and Surface Finishing</u> November 2-4, 1970	SP 348	1,000	1,554
° <u>Twenty-Fourth Summer Symposium in Analytical Chemistry</u> June 16-18, 1971	SP 351	3,600	2,500
° <u>Fifth Materials Research Symposium on Solid State Chemistry</u> October 18-21, 1971	SP 364	1,000	267
° <u>MFGC Conference on Mechanical Failure Prevention Through Lube Oil Analysis</u> November 2-4, 1972	*	200	*
° <u>Conference on Accuracy in Spectrophotometry and Luminescence Measurements</u> March 22-24, 1972	SP 378	900	1,960
° <u>Third International Congress on Marine Corrosion and Fouling</u> October 2-6, 1972	*	1,000	*

°MFPG Conference on Environmental Effects on Mechanical Failures, Mechanisms and Detection <u>April 25-27, 1972</u>	*	125	*
°MFPG Conference on Detection, Diagnosis and Prognosis <u>November 8-10, 1972</u>	NBSIR 73-252	300	24
°Conference on Defects and Defect Clusters in B.C.C. Metals and Their Alloys <u>August 14-16, 1973</u>	*	500	*
°Sixth Materials Research Symposium on Standard Reference Materials and Meaningful Measurements <u>October 29 - November 2, 1973</u>	SP 408	645	**
°MFPG Conference on the Role of Cavitation in Mechanical Failures <u>October 31 - November 2, 1973</u>	SP 394	200	188
°National Materials Conservation Symposium <u>April 29 - May 1, 1974</u>	*	300	*
°Seminar on Aerosol Measurements <u>May 7, 1974</u>	SP 412	1,145	80
°MFPG Symposium on Mechanical Failures <u>May 8-10, 1974</u>	SP 423	545	**
°Marine Pollution Monitoring (Petroleum) Symposium and Workshop <u>May 13-17, 1974</u>	SP 409	2,000	1,000
°Workshop on Secondary Ion Mass Spectrometry <u>September 16-18, 1974</u>	SP 427	950	**
°Seventh Materials Research Symposium - Accuracy in Trace Analysis <u>October 7-11, 1974</u>	SP 422	820	**

INSTITUTE FOR MATERIALS RESEARCH
MATERIALS RESEARCH SYMPOSIA SERIES

SPONSOR LISTING

<u>Title and Date</u>	<u>Sponsor(s)</u>
° <u>Conference on Calculation of the Properties of Vacancies and Interstitials</u> <u>May 1-4, 1966</u>	Institute for Materials Research Advanced Research Projects Agency
° <u>First Materials Research Symposium on Trace Characterization</u> <u>October 3-7, 1966</u>	Institute for Materials Research
° <u>Seminar on Quantitative Electron Probe Microanalysis</u> <u>June 12-13, 1967</u>	Institute for Materials Research
° <u>Second Materials Research Symposium on Molecular Dynamics and Structure of Solids</u> <u>October 16-19, 1967</u>	Institute for Materials Research
° <u>Symposium on Mass Transport in Oxides</u> <u>October 22-25, 1967</u>	Institute for Materials Research Advanced Research Projects Agency
° <u>Symposium on Mechanical and Thermal Properties of Ceramics</u> <u>April 1-2, 1968</u>	Institute for Materials Research American Ceramic Society American Society for Testing and Materials
° <u>Must They Fail?</u> <u>May 1, 1968</u>	Institute for Materials Research American Society for Metals American Society for Mechanical Engineers

- International Conference on Modern Trends in Activation Analysis
October 7-11, 1968
Institute for Materials Research
U. S. Atomic Energy Commission
International Atomic Energy Agency
EURISTOP
- Symposium on Ion-Selective Electrodes
January 30-31, 1969
Institute for Materials Research
- Symposium on Thermodynamic Properties of Bulk Polymers
March 10-12, 1969
Institute for Materials Research
- Conference on Fundamental Aspects of Dislocation Theory
April 21-25, 1969
Institute for Materials Research
- International Standard Reference Materials Symposium
May 26-28, 1969
Institute for Materials Research
International Commission of Weights and Measures
- Symposium on Dental Materials Research (50th Anniversary at NBS)
October 6-8, 1969
Institute for Materials Research
American Dental Association
- Third Materials Research Symposium on Electronic Density of States
November 3-6, 1969
Institute for Materials Research
- Fourth Materials Research Symposium on Mechanisms of Pyrolysis, Oxidation and Burning of Organic Materials
October 26-29, 1970
Institute for Materials Research
- Science of Ceramic Machining and Surface Finishing
November 2-4, 1970
Institute for Materials Research
Office of Naval Research
American Ceramic Society

°Twenty-Fourth Summer Symposium in Analytical Chemistry
June 16-18, 1971

Institute for Materials Research
American Chemical Society
ANALYTICAL CHEMISTRY Magazine

°Fifth Materials Research Symposium on Solid
State Chemistry
October 18-21, 1971

Institute for Materials Research

°Mechanical Failures Prevention Group (MFPG)
Conference - Mechanical Failure Prevention
Through Lube Oil Analysis
November 2-4, 1971

Institute for Materials Research
Mechanical Failures Prevention Group

°Conference on Accuracy in Spectrophotometry and
Luminescence Measurements
March 22-24, 1972

Institute for Materials Research

°Mechanical Failures Prevention Group (MFPG)
Conference - Environmental Effects on Mechanical
Failures, Mechanisms, and Detection
April 25-27, 1972

Institute for Materials Research
Mechanical Failures Prevention Group

°Automotive Emissions Reference Gas Conference
July 27-28, 1972

Institute for Materials Research

°Third International Congress on Marine Corrosion
and Fouling
October 2-6, 1972

Institute for Materials Research
Maritime Administration
Naval Facilities Engineering Command
Naval Oceanographic Office
Naval Ships Systems Command
Office of Naval Research
Oceanographer of the Navy
U.S. Coast Guard
American Iron and Steel Institute
American Wood Preservers Institute
M & T Chemicals, Inc.
Northwestern University

- Mechanical Failures Prevention Group (MFPG)
Conference - Detection, Diagnosis, and Prognosis
November 8-10, 1972
- Conference on Defects and Defect Clusters in B.C.C.
Metals and Their Alloys
August 14-16, 1973
- Sixth Materials Research Symposium on Standard
Reference Materials and Meaningful Measurements
October 29 - November 2, 1973
- Mechanical Failures Prevention Group (MFPG)
Conference - The Role of Cavitation in
Mechanical Failures
October 31 - November 2, 1973
- National Materials Conservation Symposium
April 29 - May 1, 1974
- Seminar on Aerosol Measurements
May 7, 1974
- Mechanical Failures Prevention Group (MFPG)
Symposium on Mechanical Failures - Definition
of the Problem
May 8-10, 1974

Institute for Materials Research
Mechanical Failures Prevention Group

Institute for Materials Research
National Science Foundation
American Institute of Metallurgical
Engineers

Institute for Materials Research

Institute for Materials Research
Mechanical Failures Prevention Group

Institute for Materials Research
Bureau of Mines
Environmental Protection Agency
National Center for Resource Recovery
American Society for Testing and Materials

Institute for Materials Research
Food and Drug Administration

Institute for Materials Research
Mechanical Failures Prevention Group
Consumer Products Safety Commission
Federal Aviation Administration
Frankford Arsenal
National Aeronautics & Space Administration
American Society of Mechanical Engineers

° Marine Pollution Monitoring (Petroleum)
Symposium and Workshop
May 13-17, 1974

Institute for Materials Research
Maritime Administration
National Oceanic and Atmospheric
Administration
Intergovernmental Oceanographic Commission
World Meteorological Organization

° Workshop on Ozone Measurement by the Potassium
Iodide Method
August 26-27, 1974

Institute for Materials Research
Environmental Protection Agency

° Workshop on Secondary Ion Mass Spectrometry
September 16-18, 1974

Institute for Materials Research

° Seventh Materials Research Symposium - Accuracy
in Trace Analysis
October 7-11, 1974

Institute for Materials Research

° MFPG Conference on Success by Design: Progress
Through Failure Analysis
November 7-8, 1974

Institute for Materials Research
Mechanical Failures Prevention Group
Office of Naval Research
Frankford Arsenal
Naval Air Development Center
Federal Aviation Administration

° Non-Destructive Evaluation Review and Workshop
December 2-3, 1974

Institute for Materials Research

° Conference on Instrumental Methods in Air and
Water Measurements and Monitoring
December 14, 1974

Institute for Materials Research
IEEE Nuclear and Plasma Sciences Society

° Symposium on Practical Applications of Neutron
Radiography and Gauging
February 10-11, 1975

Institute for Materials Research
American Society for Testing and Materials

°Piezoelectric and Pyroelectric Symposium
April 15-16, 1975

°MFPG Symposium in Detection, Diagnosis, and
Prognosis
April 23-25, 1975

°Workshop on Automotive Emissions Measurements
May 20, 1975

°Seminar on Ultrasonic Tissue Characterization
May 28-30, 1975

Institute for Materials Research
Office of Naval Research
Army Research Office

Institute for Materials Research
Mechanical Failures Prevention Group
Office of Naval Research
National Aeronautics and Space
Administration
Frankford Arsenal
Federal Aviation Administration

Institute for Materials Research
Environmental Protection Agency

Institute for Materials Research
National Science Foundation
National Institutes of Health - Clinical
Center

INSTITUTE FOR MATERIALS RESEARCH
MATERIALS RESEARCH SYMPOSIA SERIES

FY 1966-1975

SUMMARY

42 MEETINGS

- ATTENDANCE
 - OVER 7,300 PARTICIPANTS
- REPRESENTATION
 - 812 U.S. INDUSTRIAL AND PRIVATE ORGANIZATIONS
 - 249 U.S. RESEARCH INSTITUTES AND COLLEGES/UNIVERSITIES
 - 199 FEDERAL ORGANIZATIONS
 - 56 STATE AND LOCAL ORGANIZATIONS
 - 442 FOREIGN ORGANIZATIONS FROM 52 COUNTRIES AND PROTECTORATES
- PUBLISHED PROCEEDINGS
 - SALES CURRENTLY IN EXCESS OF 65,000 COPIES (COVERING 31 MEETINGS)
- SPONSORED BY 42 INDIVIDUAL ORGANIZATIONS REPRESENTING
 - FEDERAL GOVERNMENT (22)
 - PROFESSIONAL AND STANDARDS ORGANIZATIONS (10)
 - PRIVATE ORGANIZATIONS (4)
 - INTERNATIONAL ORGANIZATIONS (5)
 - UNIVERSITY (1)

INSTITUTE FOR MATERIALS RESEARCH

Materials Research Symposia Series

U.S. INDUSTRIAL AND PRIVATE ORGANIZATIONS

REPRESENTED BY PARTICIPANTS

AAI Corporation (28)
 Academy for Plastics Research (13)
 Accumet Engineering Corporation (16)
 Acme Chemical Company (9)
 Actron Industries, Incorporated (20)
 Advanced Materials and Technology, Incorporated (6)
 Advanced Research Electronics, Incorporated (8)
 Advanced Technology Center, Incorporated (38)
 Advanced Technology Consultants Corporation (8)
 AEI Scientific Apparatus, Incorporated (33)
 Aerojet-General Corporation (2,19,21,23,27)
 Aerojet-Nuclear Company (24)
 Aerospace Corporation (15,33,38)
 Aerotest Operations, Incorporated (38)
 Airco, Incorporated (15,22,41)
 Airesearch Company (19)
 Air Monitoring, Incorporated (22)
 Airpax Electronics, Incorporated (6)
 Air Preheater Company, Incorporated (9)
 Air Products and Chemicals, Incorporated (22)
 Albion Malleable Iron Corporation (2)
 Allegheny Airlines (19)
 Allegheny Ludlum Steel Corporation (9,34)
 Alliance for Engineering in Medicine and Biology (42)
 Allied Chemical Corporation (2,6,11,15,18,26,34)
 Alphamedics Manufacturing Corporation (20)
 Aluminum Company of America (2,9,26,28,34)
 Alyeska Pipeline Service Company (31)
 AMAX Exploration (26,34)
 AMCO (13)
 American Airlines, Incorporated (19,38)
 Association for the Advancement of Science (17)
 Can Company (2,28,34)
 Cast Iron Pipe Company (2,26,34)
 Cyanamid Company (9,15,17,18,20,34)
 Dental Association (13)
 Enka Corporation (2,9,15,34)
 Hospital Supply Corporation (13)
 Iron and Steel Institute (23,28)
 Lava Corporation (16)
 Motors Corporation (22,41)
 National Standards Institute (26)
 Oil Company (2,15,17)
 Optical Company (9,13,16,42)
 Petroleum Institute (26,31)
 Smelting and Refining Company (2,17,23,34)
 Society for Testing and Materials (22,26,28,34,38)
 Standard, Incorporated (9,15,16)
 Telephone and Telegraph Company (24,29,35)

Ameron Corrosion Control (23)
Ampex Corporation (19,29,40)
Anaconda American Brass Company (2)
Analysts, Incorporated (19,40)
Anchor Hocking Glass Corporation (2,28)
Anheuser-Busch, Incorporated (20)
Ansul Company (15)
Applied Research Laboratories (33)
Applied Sciences Corporation (20)
ARCO Polymers, Inc. (28)
ARINC Research Corporation (19,24,29)
Armco Steel Corporation (2,26,29,35)
Armstrong Cork Company (15)
Arnold Engineering (16)
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 Union Carbide Corporation (2,5,6,8,9,15,16,17,18,19,20,22,23,26,31,34,37,38)
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 United Aircraft Corporation (2,24,38)
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 Phosphoric Products (9)
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 Steel Corporation (2,6,9,11,14,18,23,28,33,35)

Unitek Corporation (13)
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Value Engineering Corporation (29,35)
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 Vibro-Meter Corporation (40)
 Victoreen Instruments (37)
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Gerald Wagner (35)
 Waldemar Research Foundation (9)
 Wallace-Murray Corporation (6)
 I. Walter Research Corporation (28)
 Warner-Lambert Pharmaceutical Company (9)
 Washington Ecology Center (28)
 Washington Research Services (28)
 Waste Management, Incorporated (28)
 Waterbury Hospital (26)
 Wear Check International (19)
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 Westvaco Corporation (15)
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 Wiley-Interscience (2)
 J. Wiley and Sons, Incorporated (17,34)
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 Williams Gold Refining Company (13)
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 A. Wood Steel Company (2)
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 C. Wright Corporation (29)

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Zapata Offshore Company (23)
 Zenith Radio Corporation (2,14,18,26,34)

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Materials Research Symposia Series

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 American University (9,14,17,20)
 Arizona State University (5,17,18)
 Auburn University (9,14,17)
 Augusta College (34)

Barnard College (9)
 Battelle Memorial Institute (5,6,8,9,11,12,14,15,16,17,18,19,20,21,23,
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 Boston College (15)
 Boston University (20)
 Bowdoin College (4,31)
 Bowman-Gray Medical School (8,42)
 Bradley University (17)
 Brooklyn College - CUNY (14,37)
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 Canisius College (17)
 Capital University (17)
 Carnegie Institution of Washington (34)
 Carnegie-Mellon University (2,4,5,6,8,9,26,29,42)
 Carson-Newman College (4)
 Case Western Reserve University (5,6,9,11,14,15,16,25,39,42)
 Catholic University (4,8,15,23,27,39)
 Central Michigan University (34)
 Central Washington State College (17)
 City College - CUNY (8,13,14,17)
 Clark University (9)
 Clarkson College of Technology (15,25,30)
 Clemson University (13,14,15)
 Colorado School of Mines (9,29)
 Colorado State University (27,34)
 Columbia University (5,11,18,23,42)
 Cornell University (1,2,6,8,11,14,15,17,18,23,25,33,34)

Dartmouth College (4,9)
 Denison University (8)
 DePaul University (34)
 Dickinson College (17,37)
 Drexel Institute of Technology (2,4,9)
 Drury College (17)
 Duke University (23,42)

Earlham College (17)
East Carolina College (17)
East Stroudsburg State College (9,17)
Eastern Mennonite College (17)
Eastern Michigan University (17)
Eastern Pennsylvania Psychiatric Institute (9)
Emory University (13)
Evergreen State College (31)

Fairleigh Dickinson University (23,37)
Florida Atlantic University (31)
Florida State University (11,31)
Franklin and Marshall College (17)
Franklin Institute Research Laboratories (14,18,23,29,38,40)

George Mason College (17)
Georgetown University (8,13,17)
George Washington University (2,4,9)
Georgia Institute of Technology (8,9,16,29,30,38)
Goddard College (14)
Goucher College (17)

Harvard University (4,8,9,11,13,14,23,31)
Harvey Mudd College (4,17)
Hood College (17)
Hope College (4)

Illinois Institute of Technology (5,8,15,18,21,24,27,28,29,30)
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Indiana University (13,30,42)
Institute of Applied Physiology and Medicine (42)
Iowa State University (2,4,5,8,17,18,25,34,35,42)

Jackson State College (9)
Johns Hopkins University (4,6,9,11,15,16,17,18,20,34,35,37,39,42)

Kansas State University (8,17)
Kent State University (17)

Latter-Day Saints Hospital (42)
Lehigh University (1,6,9,11,17,21,29)
Long Island University (4)
Louisiana State University (2,8,13,14,17,20,38)
Louisiana University Medical Center (26)
Lowell Technological Institute (25)
Loyola University (17)
Lynchburg College (17)

Macomb County Community College (17)
Mankato State College (17)
Marquette University (5,17)
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Massachusetts Institute of Technology (2,4,5,8,14,15,16,17,18,19,23,25,28,31,33,42)
Medical College of Wisconsin (17,20,42)
Michigan State University (1,4,14,25,28)

Michigan Technological University (28) \
 Middlebury College (17)

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 Mt. Sinai Hospital (42)

Nazareth College (4)

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 Newark State College (17)

 North Carolina State University (8,9,16,17,23,25,34)

 North Dakota State University (34)

 Northeastern University (17,23,29)

 Northern Illinois University (4,14,18,34)

 Northwestern Memorial Hospital (42)

 Northwestern University (4,5,9,11,13,14,18,23,25,26,39)

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Oakland University (4)

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 Ohio University (14)

 Old Dominion College (9,31)

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Pedodontics School of Dental Medicine (9)

 Pennsylvania Military College (4,17)

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 Polytechnic Institute of Brooklyn (13,14,18)

 Princeton University (1,4,11,14,15,18,25,37,39)

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Queens College (1,5,17,42)

Reed College (8)

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 Research Institute of Laboratory Medicine - Institute of Medical Science (20)

 Research Triangle Institute (2)

 Rhode Island Junior College (17)

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 Roche Institute of Molecular Biology (20)

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 - Davis (34)
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 - Livermore (5,8,14,17,25,34,37,38)
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 - Riverside (17)
 - San Rafael (Medical Hospital) (13)
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 - Galveston (34)
 - Port Aransas (31)
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Wooster College (17)
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Yale University (14,37,42)
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Youngstown State University (14,34)

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- Forest Service (28)
- NE Watershed Research Center (9,17)
- Nutrition Institute (34)
- Plant Soil and Nutrition Laboratory (34)
- Research Center - Beltsville (17,20,34)
- Research Service (9,17)
- Soil Survey Laboratory (9)
- Soil Testing Division (9)
- Southern Regional Research Laboratory (15)
- Western Regional Laboratory (9)

ARMS CONTROL AND DISARMAMENT AGENCY (2)

ATOMIC ENERGY COMMISSION

- Ames Laboratory (2,8,15,17,25)
- Aeronautical Depot Maintenance Center (19,21)
- Argonne National Laboratory (1,2,4,5,6,8,11,14,17,25,33,37,38)
- Brookhaven National Laboratory (1,4,8,9,14,16,18,25,34,37)
- Division of Biology and Medicine (17)
- Division of Isotopes Development (17)
- Division of Production and Materials Management (38)
- Headquarters (2,8,17,24,25,26,27,29,31,33,34,35,37,38)
- Knolls Atomic Power Laboratory (2,8,25,26,29,34)
- Lawrence Livermore Laboratory (2,4,14,16,17,20,25)
- Los Alamos Laboratory (2,8,14,16,17,18,25,26)
- New Brunswick Laboratory (34)
- Nuclear Regulatory Commission (36,38,39,42)
- Oak Ridge National Laboratory (1,2,4,5,8,9,11,14,17,18,20,24,25,26,33,34,37,40)
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COMMERCE

- Advisor for International Activities (12)
- Bureau of Domestic Commerce (28)
- Environmental Data Service (31)
- Maritime Administration Headquarters (23,31)
- Merchant Marine Academy (23)
- National Bureau of Standards (all)
- National Marine Fisheries Service (31)
- National Ocean Survey (31)
- National Weather Service (31)
- NOAA - Air Resources Laboratories (37)
 - Department of Environmental Protection (34)
 - Office of the Administrator (17,31,32,34)
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Aerospace Research Laboratory (5,14,17)
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Armament Laboratory (15)
Cambridge Research Laboratory (2,18,34)
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Dental Corps (13)
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Harry Diamond Laboratory (14,15,19,38)
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Institute of Pathology (34)
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 Watervliet Arsenal (14,21)
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Directorate for Maintenance Policy (19,29)

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 Air Propulsion Test Center (19,21,27,29,35)
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 Air Test Center (40)
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AGENCY Air Pollution Control Office (9,17)
 Analytical Quality Control Service (17)
 Headquarters (23,26,28,30,31,32,34,41)
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 NFIC (37)
 National Water Quality Lab. (31,34)
 Office of Monitoring (22)
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 Southeast Water Laboratory (17)
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FEDERAL ENERGY OFFICE (29,35)

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GENERAL SERVICES ADMINISTRATION (6,17,20)

GOVERNMENT PRINTING OFFICE (29)

HEALTH,
EDUCATION &
WELFARE Bureau of Radiological Health (42)
 Center for Disease Control (20,26,34)
 Food and Drug Administration (8,9,13,15,17,20,26,30,34,42)
 Lister Hill National Center for Biomedical Comm. (42)
 National Cancer Institute (33,42)
 National Heart and Lung Institute (17,20,42)
 National Institute for Dental Research (13)
 National Institute for General Medical Sciences (4,9,17,20)
 National Institute for Mental Health (4)
 National Institute for Occupational Safety and Health (32)
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INTERIOR Bureau of Commercial Fisheries (2,9)
 Bureau of Land Management (31)
 Bureau of Mines (3,5,8,9,14,17,18,22,26,28,29,31,34,37,40)
 Fish and Wildlife Service (9,31)
 Geological Survey (2,4,8,9,17,18,26,31,34,37,40)
 Metallurgy Research Center (8)

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NATIONAL ACADEMY OF SCIENCES (5)

NATIONAL AERONAUTICS

& SPACE

ADMINISTRATION Ames Research Center (21,31)
Electronic Research Center (9,14)
Goddard Space Flight Center (3,6,8,14,15,16,19,21,24,27,29,33,35)
Headquarters (32,33)
Johnson Space Center (33,38)
Kennedy Space Flight Center (2,24,38)
Langley Research Center (4,8,9,14,31)
Lewis Research Center (14,15,19,21,24,27)
Manned Spacecraft Center (8)
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NATIONAL SCIENCE FOUNDATION (14,17,29,31,34,42)

POSTAL SERVICE (29,38)

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STATE Headquarters (31,34)

TENNESSEE VALLEY AUTHORITY (9,17,20)

TRANSPORTATION Bureau of Public Roads (9,24)
Bureau of Surface Transportation Board (29)
Coast Guard Academy (23)
Coast Guard Research & Development Center (19,23,29,31,37)
Federal Aviation Administration (19,24,29,35,40)
Federal Railroad Administration (29)
National Highway Traffic Safety Admin. (15,40)
National Transportation Safety Board (21,29,35)

TREASURY Bureau of Engraving & Printing (34)

VETERANS Dental Service (13)
ADMINISTRATION Headquarters (42)
Hospitals (8,9,42)

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 California State Water Resources Control Board (34)
 City of Redwood (28)
 Los Angeles Air Pollution Control District (32)
 State Department of Public Health (17,34)

Connecticut Resources Recovery Authority (28)
 State Health Department (20,32)

District of Columbia Metropolitan Washington Council of Governments (28)

Florida Jacksonville Department of Public Works (28)

Illinois City of Chicago (28)
 Department of Public Health (34)
 State Environmental Protection Agency (28)
 State Geological Survey (8,17)
 State Water Survey (34)

Indiana St. Joseph County (28)
 State Board of Health (28)

Maryland Anne Arundel County Maryland (34,38)
 Department of Human Resources (34)
 Department of Water Resources (9)
 Montgomery County Department of Environmental Protection (37)
 State Department of Health and Mental Hygiene (17)
 State Environmental Service (28)

Michigan City of East Lansing (28)
 Department of Public Health (34)
 Ingham County Board of Public Works (28)

New Jersey Bergen County Department of Public Works (28)
 State Department of Health (20)
 State Environmental Protection Agency (28)
 Township of Cherry Hill (28)

New York Buffalo Museum of Science (28)
 Cattarugus County Refuse Department (28)
 County of Monroe (28)
 County of Westchester Dept. of Public Works (28)
 Erie County Environmental Management Council (28)
 Nassau-Suffolk Regional Planning Board (28)
 NYC Department of Environmental Conservation (28)

New York (Continued)	NYC Environmental Protection Agency (28) State Department of Environmental Conservation (28) Town of Smithtown (28)
North Carolina	State Department of Human Resources (28)
Ohio	Toledo Metropolitan Area Council of Governments (28)
Oregon	State Public Health Laboratory (20)
Pennsylvania	County of Beaver (28) Mercer County Regional Planning Commission (28) Power and Light Company (37) State Department of Environmental Resources (28,37) State Department of Health (9)
Puerto Rico	Puerto Rico Nuclear Center (34)
South Carolina	Department of Health & Environmental Control (34)
Tennessee	Anderson County (28)
Texas	City of Austin Power Plant (34) City of Dallas (28)
Virginia	Hampton Roads Sanitation District (34) State Division of Mineral Resources (2,34)
Wisconsin	Governor's Recycling Task Force (28) State Solid Waste Task Force (28)

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Czechoslovakia	Portugal
Denmark	Republic of China
Ecuador	Republic of Indonesia
England	Republic of Korea
Federal Republic of Germany	Republic of Singapore
Finland	Rumania
France	Scotland
Greece	Spain
Hong Kong	Sweden
Hungary	Switzerland
India	Tanzania
Israel	Thailand
Italy	Union of South Africa
Japan	Union of Soviet Socialist Republics
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Liechtenstein	West Indies
Mexico	Yugoslavia

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Atomic Energy Commission (8,17)
Centro Atomico Bariloche (11)
Departamento Aplicacion (8)
E. Investigaciones Technologicas (23)
Facultad de Odontologia de Rosario (13)

AUSTRALIA

Atomic Energy Commission (17)
Commonwealth Bureau of Dental Standards (13)
CSIRO (8,16,18,26)
Department of Navy (23)
Embassy - Scientific Mission (16,21,23,25,27,35,38)
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Monash University (18)
National Standards Laboratory (12)
National University (5,33)
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